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Induction of antibodies against structural proteins of hepatitis C virus in mice using recombinant adenovirus.

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Replication-deficient recombinant adenoviruses expressing structural proteins of hepatitis C virus (HCV) were constructed. Each recombinant lacks adenoviral E1A and E3 genes and bears expression units for HCV structural proteins. The expression units contain HCV cDNAs coding for either the protein or core, one of two envelopes (E1 and E2) or all of these structural proteins (core, E1 and E2) under the control of the SR alpha promoter. In HeLa or HepG2 cells, the recombinants can express efficiently HCV genes after infection without replication of the recombinants. We detected 22-kDa core, 35-kDa E1 and 58-kDa E2 proteins of HCV in these cells. The recombinant expressing all three HCV structural proteins was inoculated into mice. Antibodies to each of the three HCV proteins were detected in all of the ten mice tested. The results indicate that the recombinant adenoviruses efficiently express HCV genes and induce specific antibody against the expressed HCV proteins in animals.

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